SILVERSTONE®
Designing Inspiration

STRIDER
ST50F
Elevated performance, at ease

Strong continuous power output
Components designed for reliability
Dual +12V rails for newest systems
Dual 6pin PCI-E connectors
Six serial ATA connectors
Intelligent 120mm variable speed fan
Active PFC

SPECIFICATION

SilverStone Strider ST50F
ATX12V 2.2 Switching Power Supply
With Active PFC
PS/2 500W

1. GENERAL DESCRIPTION AND SCOPE

This is the specification of Model SST-ST50F; AC-line powered switching power supply with active PFC (Power Factor Correction) circuit, meet EN61000-3-2 and with Full Range Input features.

The specification below is intended to describe as detailedly as possible the functions and performance of the subject power supply. Any comment or additional requirements to this specification from our customers will be highly appreciated and treated as a new target for us to approach.

2. REFERENCE DOCUMENTS

The subject power supply will meet the EMI requirements and obtain main safety approvals as following:

2.1 EMI REGULATORY

- FCC Part 15 Subpart J, Class 'B' 115 Vac operation.
- CISPR 22 Class 'B' 230 Vac operation.

2.2 SAFETY

- NEMKO EN 60950-1
- TUV EN 60950-1
- CSA EN 60950-1
- IEC EN 60950-1
- UL EN 60950-1
- CE :

EN 55022:1998+A1: 2000, Class B
EN 61000-3-2: 2000
EN 61000-3-3: 1995+A1: 2001
EN 60950-1

CISPR22: 1997+A1: 2000, Class B
AS/NZS CISPR 22: 2002, Class B

3. INPUT ELECTRICAL SPECIFICATIONS

3.1 AC INPUT

Parameter	Min.	Nom.(1)	Max.	Unit
V_{in} (115VAC)	90	115	150	VAC rms
V_{in} (230VAC)	150	230	265	VAC rms
V_{in} Frequency	47	--	63	HZ

◆ Nominal voltages for test purposes are considered to be within ±1.0V of nominal.

3.2 INRUSH CURRENT

(Cold start - 25 deg. C)

115V	No damage
230V	No damage

Maximum inrush current from power-on (with power on at any point on the AC sine) and including, but not limited to, three line cycles, shall be limited to a level below the surge rating of the input line cord, AC switch if present, bridge rectifier, fuse, and EMI filter components. Repetitive ON / OFF cycling of the AC input voltage should not damage the power supply or cause the input fuse to blow.

3.3 INPUT LINE CURRENT & POWER FACTOR(P.F.)

AC input	Input line current	Power Factor
115V	< 6.0Amps - rms	> 0.95

3.4 EFFICIENCY

Loading	Voltage	Full load	Typical load	Light load
Required Minimum Efficiency	115V	78%	80%	76%
Required Minimum Efficiency	230V	80%	82%	80%

3.5 MECHANICAL SPECIFICATIONS

The mechanical drawing of the subject power supply, which indicate the form factor, location of the mounting holes, location, the length of the connectors, and other physical specifications of the subject power supply. Please refer to the attachment drawing.

4. OUTPUT ELECTRICAL REQUIREMENTS

4.1 OUTPUT VOLTAGE AND CURRENT RATING

Output	MINIMUM LOAD	NORMAL LOAD	MAXIMUM LOAD	PEAK LOAD	LOAD REG	LINE REG	RIPPLE
+3.3V	0.5A	15A	30A		±5%	±1%	50mV P-P
+5V	0.3A	15A	30A		±5%	±1%	50mV P-P
+12V1	1A	4A	18A		±5%	±1%	120mV P-P
+12V2	1A	7A	18A		±5%	±1%	120mV P-P
-12V	0A	0.25A	0.8A		±10%	±1%	120mV P-P
+5VSB	0A	1.25A	2.5A	3.5A	±5%	±1%	50mV P-P

(1) +3.3V & +5V total output not exceed 152W.

(2) +3.3V & +5V & +12V1 & +12V2 total output not exceed 480W.

(3) Maximum combined current for the 12V outputs shall be 29A.

(4) +5VSB Peak current loading is 3.5A , shall be supported for a minimum of 500m second.

Voltages and ripple are measured at the load side of mating connectors with a 0.1 uF monolithic ceramic capacitor paralleled by a 10 uF electrolytic capacitor across the measuring terminals.

4.2 LOAD CAPACITY SPECIFICATIONS

The cross regulation defined as follows, the voltage regulation limits DC include DC Output ripple & noise.

LOAD	STM.	+3.3V	+5V	+12V1 DC	+12V2 DC	-12V	+5VSB
FULL LOAD	LHMMHH	0.5A	30A	13.7A	13.7A	0.5A	2.5A
FULL LOAD	HMMMHH	30A	10.6A	13.7A	13.7A	0.5A	2.5A
+3.3V MAX other MIN	HLLLLL	30A	3A	3A	3A	0A	0A
+5V MAX Other MIN	LHLLLL	0.5A	20A	2A	2A	0A	0A
+12V1&+12V2 MAX Other MIN	LLHHLL	2A	2A	18A	18A	0A	0A
-12V MAX other MIN	LLLLHL	0.5A	0.3A	1A	1A	0.5A	0A
+5VSB MAX other MIN	LLLLLH	0.5A	0.3A	1A	1A	0A	2.5A
ALL MIN	LLLLLL	0.5A	0.3 A	1A	1A	0A	0A

4.3 HOLD-UP TIME (@FULL LOAD)

115V / 60Hz : 17 mSec. Minimum.
230V / 50Hz : 17 mSec. Minimum.

The output voltage will remain within specification, in the event that the input power is removed or interrupted, for the duration of one cycle of the input frequency. The interruption may occur at any point in the AC voltage cycle. The power good signal shall remain high during this test.

4.4 OUTPUT RISE TIME

(10% TO 95% OF FINAL OUTPUT VALUE, @FULL LOAD)

115V-rms or 230V-rms
+ 3.3Vdc : 20ms Maximum
+ 5Vdc : 20ms Maximum
+ 12Vdc : 20ms Maximum
+ 5Vsb : 25ms Maximum
- 12Vdc : 20ms Maximum

4.5 OVER VOLTAGE PROTECTION

Voltage Source	Protection Point
+3.3V	3.76V-4.3V
+5V	5.6V-7.0V
+12V	13.0V-15.6V

4.6 OVER CURRENT PROTECTION

OUTPUT VOLTAGE	Max. over current limit
+3.3V	50.0A
+5V	48.0A
+12V1 DC	22.0A
+12V2 DC	22.0A

4.7 SHORT CIRCUIT PROTECTION

Output short circuit is defined to be a short circuit load of less than 0.1 ohm.

In the event of an output short circuit condition on +3.3V, +5V or +12V output, the power supply will shutdown and latch off without damage to the power supply. The power supply shall return to normal operation after the short circuit has been removed and the power switch has been turned off for no more than 2 seconds.

In the event of an output short circuit condition on -12V output, the power supply will not be damaged. The power supply shall return to normal operation as soon as the short circuit has been removed. and the power switch has been turned off for no more than 2 seconds.

4.8 POWER SIGNAL

POWER GOOD @115/230V, FULL LOAD	100 -500mSec.
POWER FAIL @115/230V, FULL LOAD	1 mSec. minimum

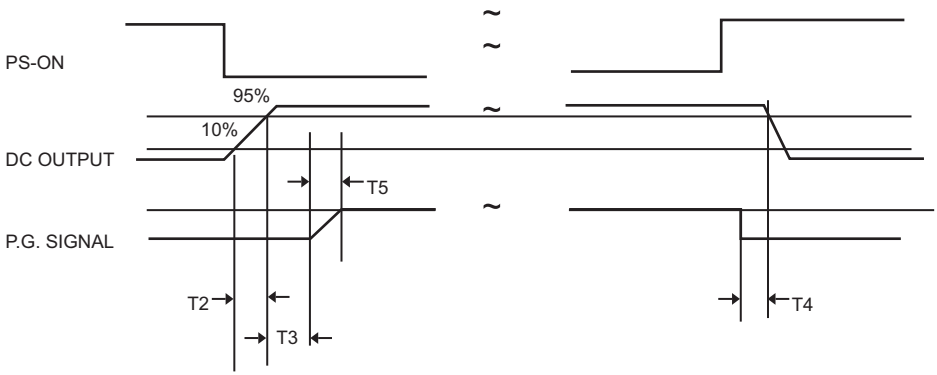

Figure 1

T2: RISETIME <20ms
T3: POWER GOOD DELAY TIME 100mS-500mS
T4: POWER FAIL DELAY TIME > 1ms
T5: POWER GOOD RISETIME ≦ 10ms

5. FAN NOISE REQUIREMENTS

5.1 The subject power supply is cooled by a self-contained, 120mm, 12VDC fan.

6. ENVIRONMENTAL REQUIREMENTS

The power supply will be compliant with each item in this specification for the following Environmental conditions.

6.1 TEMPERATURE RANGE

Operating	+10 to +50 deg. C
Storage	-20 to +80 deg. C

The maximum continuous power rating of supply is 500W at 40℃.
De-rate 4W/℃ from 40℃ to 50℃.
The maximum continuous power rating of supply is 460W at 50℃.

6.2 HUMIDITY

Operating	5 -95% RH, Non-condensing
Storage	5 -95% RH, Non-condensing

6.3 VIBRATION

The subject power supply will withstand the following imposed conditions without experiencing non-recoverable failure or deviation from specified output characteristics.

Vibration Operating - Sine wave excited, 0.25 G maximum acceleration, 10-250 Hz swept at one octave / min. Fifteen minute dwell at all resonant points, where resonance is defined as those exciting frequencies at which the device under test experiences excursions two times large than non-resonant excursions.

Plane of vibration to be along three mutually perpendicular axes.

6.4 GROUND LEAKAGE CURRENT

The power supply groud leakage current shall be less than 3.5 mA.

6.5 RELIABILITY

The power supply reliability,when calculated by MIL-HDBK-217;latest revision, are exceed 100,000 hours with all output at maximum load and an ambient temperature of 25℃.

6.6 DIELECTRIC STRENGTH

Primary to Frame Ground : 1800 Vac for 1 sec.
Primary to Secondary : 1800Vac for 1 sec.

6.7 INSULATION RESISTANCE

Primary to Frame Ground : 20 Meg.ohms Minimum
Primary to Secondary : 20 Meg.ohms Minimum

7. LABELLING

Label marking will be permanent, legible and complied with all agency requirements.

7.1 MODEL NUMBER LABEL

Labels will be affixed to the sides of the power supply showing the following:

- Manufacturer's name and logo.
- Model no., serial no., revision level, location of manufacturer.
- The total power output and the maximum load for each output.
- AC input rating.

8. PIN DEFINITION

M/B 24PIN connector

18AWG wire	Signal	Pin	Pin	Signal	18AWG wire
Orange	+3.3V	11	1	+3.3V	Orange
Orange(24AWG)	+3.3Vsense	11			
Blue (24AWG)	-12VDC	12	2	+3.3V	Orange
Black (18AWG)	COM	13	3	COM	Black
Green(24AWG)	PS-ON	14	4	+5VDC	Red
Black	COM	15	5	COM	Black
Black	COM	16	6	+5VDC	Red
Black	COM	17	7	COM	Black
White	NC	18	8	P	Grey (24AWG)
Red	+5VDC	19	9	+5VSB	Purple(20AWG)
Red	+5VDC	20	10	+12V1	Yellow
Red	+5VDC	J3	J1	+12V1	Yellow
Black	COM	J4	J2	+3.3V	Orange

4PIN molex connector (HDD)

4PIN floppy connector (FDD)

18 AWG wire	Signal	Pin	Pin	Signal	20AWG wire
Red	+5VDC	1	1	+12V1	Yellow
Black	COM	2	2	COM	Black
Black	COM	3	3	COM	Black
Yellow	+12V1	4	4	+5VDC	Red

EPS 12V 8PIN connector

Yellow	+12V1	5	1	COM	Black
Yellow	+12V1	6	2	COM	Black
Yellow/Black	+12V2	7	3	COM	Black
Yellow/Black	+12V2	8	4	COM	Black

SATA connector

18 AWG wire	Signal	Pin
Orange	+3.3V	5
Black	GND	4
Red	+5V	3
Black	GND	2
Yellow	+12V1	1

6PIN PCI Express Connector

18AWG wire	Signal	Pin	Pin	Signal	18AWG wire
Yellow/Black	+12V2	1	4	GND	Black
Yellow/Black	+12V2	2	5	GND	Black
Yellow/Black	+12V2	3	6	GND	Black

To be valid, this sheet must be filled out by
your salesperson at the time of purchase.

Store :
Purchaser :
Purchase date :
Model No. :
Serial No. :

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